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REPORT

OF THE

GEOLOGICAL SURVEY AND CONDITION

OF THE

**REEA MINE,**

IN THE

County of Mecklenburg,

NORTH CAROLINA.

BY

**PROF. MONTROVILLE WILSON DICKESON, M. D.,**

**OF PHILADELPHIA,**

Member of the American Association for the Promotion of Science; the Academy  
of Natural Sciences of Philadelphia; the Society for Developing the  
Mineral Resources of the United States, &c., &c.



PHILADELPHIA:

J. B. CHANDLER, PRINTER, 306 CHESTNUT ST., GIRARD BUILDING,  
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CA 7-3651 Rev



April 7 1870 a/d

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# RHEA MINE,

MECKLENBURG COUNTY, NORTH CAROLINA.

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At the request of the owners of this property, I, in April last, gave it an examination, though it had been surveyed as early as the year 1853, and reported upon by Prof. Emmons, of North Carolina, whose report is herewith given.

To the uninformed in regard to the mineral regions of North Carolina, the *interim* between these two periods of time, would naturally convey the impression that a property so rich and clearly available for production, would have been subjected in some measure, to the exhausting effect of mining. On the contrary, however, owing to the monetary difficulties that so soon intervened, subsequently to 1853, this property has maintained its comparative integrity, which at that time was supposed to consist chiefly in the value of its gold veins, but to which late disclosures have given it more prominence in the way of its copper ores.

The late practical developments in this state, presenting an almost inexhaustible supply of copper ores—a result I had long since foretold, as sure to occur, when



confidence and capital could be intelligently directed in that way—are establishing the fact, that its mineral lands are very rich in cupriferous matter; and though all the lands denominated “copper lands,” are not reliable as such, still there are a great many properties, on well defined leads that are worthy of entire confidence, and which must ultimately prove to be very valuable.

Too many copper mines can neither be opened nor rendered productive in view of the very great and increasing demand for manufactured copper; as some ten millions of dollars worth is annually used up, or rendered worthless by the wants growing out of ocean navigation alone.

This very fine property, embracing two contiguous tracts, the aggregate quantity of which is three hundred and seventy-five acres, is situated in the County of Mecklenburg, State of North Carolina, within nine miles of the town of Charlotte, which is the terminus of the Charlotte and South Carolina Railroad from Charleston, S. C., via Columbia; the North Carolina Railroad from Norfolk, via Wilmington and Beaufort, and which, also, possesses direct communication by the chain of Railroads to Baltimore, Md., thus affording every facility for transportation to a market that could reasonably be desired.

In surveying this property, I examined the out-croppings of the veins throughout, and very thoroughly every portion of its workings, and traced clearly the different lodes. The result was two distinct veins running parallel to each other, on a north-east and south-

west course, and distant about a fourth of a mile. There is, also, a third vein running east and west. These veins approximate very closely to verticality in dip, and are inclosed in perfect walls.

Across the road from the main buildings on the plantation, several prospective shafts have been sunk to the depth of from twenty to seventy feet. Here is the "Trelore shaft," in which the copper ore made its appearance at a depth of about forty feet, and continued gradually to increase in the form of *prills* and bunches down to the depth of seventy feet, where it occurs in masses weighing several hundred pounds each, entirely free of iron pyrites, and proving it to be a well defined copper lode.

There has been but a small amount of drifting from this shaft; but sufficient, however, to confirm great value, and justify the fullest confidence in ample supplies of a much better than ordinary copper-ore; the character of which, is a yellow sulphuret yielding from twenty to twenty-five per cent.

The veins on this property indicate great uniformity, are traceable nearly a mile, have been successfully worked for gold, and that they are very valuable and reliable for copper in the lower workings as very satisfactorily disclosed at this time, there cannot be a doubt.

The property is well located for mining, with an abundance of fine timber, and nothing is necessary to render it immediately productive and profitable, but a limited amount of capital and ordinary energy in its application.

I concur in the following report of Prof. Emmons,

State Geologist of North Carolina, which, at the period of time it was written, evidently favored the value of the property for gold, copper ores being in the public mind of secondary consideration, but which, hereafter, are to give the mining region of North Carolina an enduring importance and immense value.

By perusing this report, it will be seen that in a number of instances it expresses with great distinctness the value of this property for copper ores, the copper pyrites being recognized at a point below the gold workings, and which very clearly defines the character of the upper and lower workings or the relative value of each.

## REPORT.

In pursuance of my duties as Geologist of North Carolina, I have made a survey of the Rhea property, situated in the County of Mecklenburg. The veins in this property carry both copper and gold, which possesses the necessary buildings for a plantation. The land is well located on a travelled route, and is pleasantly situated as to scenery, beauty and health.

The vein of the metals occurs in three clusters; the first and most westerly cluster is made up of four parallel veins taken in pairs, thus: 1 and 2 parallel to each other; 3 and 4 also parallel, or nearly so.

The course of 1 and 2 is north,  $70^{\circ}$  east. No. 1 has been worked to the depth of seventy feet. It has furnished several pockets, stated to have been worth from six dollars to seven dollars per bushel. Its average yield, taking the whole vein, has exceeded one dollar



per bushel. The width of the vein which is now from nine to twelve inches, has increased, and in its increase in width, it has also increased imperceptibly in the amount of copper pyrites. This accounts for an important fact, for the yield of gold has apparently diminished with the depth; not because the vein carries less gold, but because the ore has passed from the brown oxide above, to the copper pyrites below.

This is now a well known change. It would be an unfair representation of the value of the vein, if we omitted to mention the fact that the only method pursued at this time for obtaining the gold, has been by the drag-mill, a mode which, while it answers a very good and useful purpose for amalgamation when the quartz is already pulverized, is not at all adapted to the work of reducing it to powder. We have, therefore, sufficient ground for believing that considerable gold still remains in the sand, which has passed through the mill.

This vein is well formed, and traverses a hard rock, with regular and distinct walls, and so far, the facts go to prove that it will continue in its present course.

As this vein has changed its condition materially from the depth of fifty to seventy feet, by an increase of copper pyrites, which is scarcely mixed at all with iron pyrites, it is highly probable it will still continue to change, and finally become a good copper ore.

The third vein runs in an oblique course to the first, and for a distance of several hundred feet, lies to the west of No. 1, which it intersects. This vein upon the hill has been worked one hundred feet deep. Portions of this vein are found to yield six dollars to seven

dollars per bushel—vein-stone resembles the former. At the bottom of the hill at the branch, it is worked only to the depth of six feet, and the vein is still all standing, south of the branch. Southward these veins may be traced about a mile.

These two veins constitute a mine in themselves, and will warrant the erection of a steam engine for working them, when if the mining works are properly conducted, they will pay a handsome profit to the owners.

The second cluster is about one-third of a mile to the eastward. There is, however, only one vein that has been worked, which is three-fourths of a mile long. Shafts have been sunk upon it at various places, and much gold obtained, but the value of the vein is not yet fully tested, though its length and regular course show it to be a strong one. It has been worked to the depth of only thirty-five feet at one shaft, and portions of the vein here yielded three to four pennyweights to the bushel. The walls of the vein are hard, and not so easily drilled as the former. It is, however, like the others, sinking down vertically. Without placing any undue value upon this last vein, there is scarcely a doubt respecting the value and permanence of the two first, I have briefly noticed. The first is like the others, a decided indication that it will be permanent.

The capabilities of the soil are not to be overlooked, for with tillage adapted to its nature, the plantation itself would furnish a source of gain. Its agricultural and mining capabilities, therefore, are recommendations not always connected, or met with on one plantation.

(Signed) E. EMMONS.

## RESUMÉ.

Three hundred and seventy-five acres of good agricultural land in Mecklenburg County, North Carolina, within nine miles of the town of Charlotte, from which point railroads radiate from or connect with, those leading to all the important cities on the sea-board, thus affording every reasonable facility for the purposes of transportation.

The upper workings of this property, reliable gold veins, some of which have been wrought to great advantage, some still unwrought to much extent, none exhausted, and the general property inviting further development for gold.

Copper indicated unmistakably by copper pyrites in all the veins in the lower workings, whenever and wherever they have been reached.

The copper ore exposed in the "Trelore Shaft" at a depth of forty feet, and which continues gradually to increase, by showing itself in *prills* and bunches, down to the depth of seventy feet, where large masses of the yellow sulphuret of copper, free of iron pyrites, yielding from twenty to twenty-five per cent. of copper, and weighing several hundred pounds each, are found, thus exhibiting a sound basis for active copper mining operations.



The veins on this property are of the desirable uniformity, approaching verticality in dip, and inclosed in regular walls.

The property is well located for mining, with timber in abundance, and nothing necessary to render it almost immediately productive and profitable, but capital and ordinary prudence and energy in its application.

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